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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,916	11/24/2003	Virgil Cotoco Ararao	27-006	6546
22898	7590	01/29/2007		
ISHIMARU & ZAHRT LLP 333 W. EL CAMINO REAL SUITE 330 SUNNYVALE, CA 94087			EXAMINER NGUYEN, THANH T	
			ART UNIT 2813	PAPER NUMBER

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/29/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/721,916

Applicant(s)

ARARAO ET AL.

Examiner

Thanh T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 21-30 is/are pending in the application.
- 4a) Of the above claim(s)    is/are withdrawn from consideration.
- 5) ☐ Claim(s)    is/are allowed.
- 6) ☒ Claim(s) 1-10 and 21-30 is/are rejected.
- 7) ☐ Claim(s)    is/are objected to.
- 8) ☐ Claim(s)    are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on    is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No.   .
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. <u>  </u>  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>  </u>   | 6) <input type="checkbox"/> Other: <u>  </u>                                |

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments filed 11/3/06 have been fully considered but they are not persuasive.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10, 21-30 are stand rejected under 35 U.S.C. 102(b) as being anticipated by Hawthorne et al. (U.S. Patent No. 6,008,991), previously applied.

Referring to figures 3-4, 9-11, Hawthorne et al. teaches a method for fabricating a semiconductor heat spreader, comprising:  
providing a unitary metallic plate (see figures 9-10); and  
forming the unitary metallic plate into:  
a panel(68/114);  
channel walls depending from the panel (68/114) to define a channel (44/110) between the channel walls and the panel for receiving a semiconductor therein (see figures 3-4, 9-10);

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at least two feet (70, see figures 3-4, 9-10) extending from respective channel walls for attachment to a substrate (138); and

at least one external reversing bend (72a/72b/116/118/146/148, see figures 4, 9-10);

a cross-sectional profile of the plate that is substantially constant along at least one horizontal direction that is perpendicular to the cross-sectional profile of the plate (see figures 3-4, 9-10).

Regarding to claims 2, 9, 22, 29. the feet are selected from an arched foot, a stand-off foot, a slotted stand-off foot, a toed foot, a stand-off toed foot, a flat foot, a slotted flat foot, a zigzag foot, a box foot, and a combination thereof (70, see figures 3-4, 9-10).

Regarding to claims 3, 9, 23, 29. forming the feet to accommodate respective set volumes of adhesive therebeneath for attaching the semiconductor heat spreader to a substrate (63/112, called conductive lead lamination).

Regarding to claims 4, 24. forming an electromagnetic interference shield for the channel (114, so that the magnetic field won't able to go through the metal shield).

Regarding to claims 5, 10, 25, 30. providing an additional unitary metallic plate (128/150); and forming the additional unitary metallic plate into a unitary auxiliary heat spreader configured for attachment on top of the semiconductor heat spreader (see figures 9-10).

Regarding to claims 6, 10, 26, 30. forming attachment means for attaching the unitary auxiliary heat spreader to the semiconductor heat spreader, the attachment means being selected from tabs, locking tabs, deformable sides, side ledges, side clips, clip bosses, center clips, side arms, and a combination thereof (legs, 124/126/158/160).

Regarding to claims 7, 27-28. forming the unitary metallic plate further comprises forming the unitary metallic plate in substantially a single metal forming process to also form an integral auxiliary heat spreader located on top of the panel (see figures 4, 9, 10).

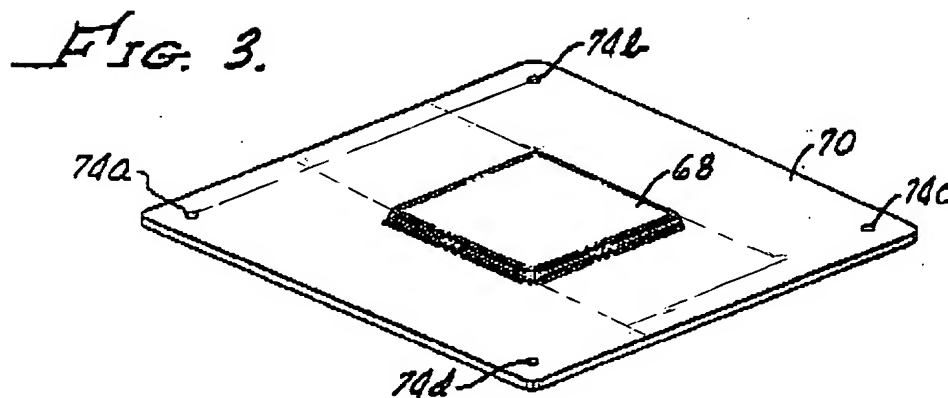
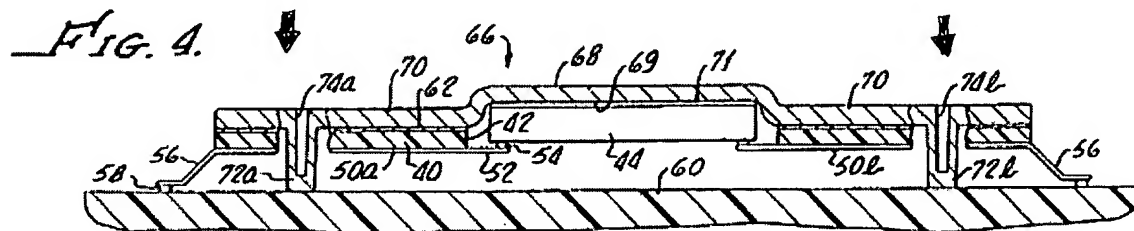
Regarding to claims 8, 9, 21, 29. forming the unitary metallic plate further comprises forming the unitary metallic plate in substantially a single metal forming process into a cross-sectional profile that is substantially constant in at least one horizontal direction that is perpendicular to the cross-sectional profile of the plate (see figures 3-4, 9-10).

Noted that references (Tosaya et al. U.S. Patent No. 6,538,320, and Ommen et al. (U.S. Patent No. 5,397,917) also teaches all of the limitations as described in claims 1-10, 21-30.

### ***Response to Arguments***

Applicant's arguments filed on Nov. 3, 2006 have been fully considered but they are not persuasive. Because applicant's description of the cross-sectional profiles of fig. 3, fig. A, fig. B and fig. C in page 4 of the Remark are not taught by Hawthorne et al. Applicant's cross-sectional profiles are between pins 74a and 74d for cross-sectional profile A, cross-sectional profile through 68 for cross-sectional profile B, and between pins 74b and 74c for cross-sectional profile C. However, Hawthorne et al. teaches at figure 4, the cross-sectional profile is between pins 74a/72a to 74b/72b, and with channel 68 between pins 74a/72a and 74b/72b. Hawthorne et al. also teaches at col. 6, lines 63-67: "It should be noted that the several drawings (all except FIG. 5) are not to scale, showing parts with different relative proportions and dimensions in order to more clearly illustrate significant features. Only FIG. 5 is drawn to correct scale".

Since, figure 3 is not in scale, hence, the cross-sectional profile of figure 4 is coming from the redrawn figure 3 as shown below having channel 68 formed between pins 74a/72a and 74b/72b and extended to between pins 74d and 74c. Therefore, Hawthorne et al. clearly teaches the claimed limitation of a cross-sectional profile of the plate (70) that is substantially constant along at one horizontal direction that is perpendicular to the cross-sectional profile (between pins 74a/72a and 74b/72b) of the plate (70).



## Conclusion

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Nguyen whose telephone number is (571) 272-1695, or by Email via address Thanh.Nguyen@uspto.gov. The examiner can normally be reached on Monday-Thursday from 6:00AM to 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, can be reached on (571) 272-1702. The fax phone number for this Group is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956 (See **MPEP 203.08**).



Thanh Nguyen  
Patent Examiner